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<110> Xenon Genetics Inc.

<120> HSAN II Related Gene and Expression Products
and Uses Thereof

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<151> 2002-11-12

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<151> 2003-09-12

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<170> PatentIn version 3.0

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His Leu Gln Asn Leu Arg Leu Asp Ser Gly Leu Gly Pro Gly Ser Pro
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Leu Ser Ser Ile Ser Ala Pro Ile Ser Thr Asp Ala Thr Arg Leu Lys
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Phe His Pro Val Phe Val Pro His Ser Ala Pro Ala Val Leu Thr His
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Gln Asn His Leu Pro Pro Gly Ser Ser Pro Thr Asn Trp Thr Pro Glu
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Asp Tyr Arg Pro Gly Leu Val Leu Ala Glu Glu Ala His Tyr Phe Ile
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His Leu Gln Asn Leu Arg Leu Asp Ser Gly Pro Ser Pro Ala Ser Pro
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Phe His Pro Val Phe Val Pro His Ser Ala Pro Ala Val Leu Thr Asn
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Arg Asn Arg Gln Val Ala Val Asp Ser Asn Gln Glu Glu Leu Ser Pro
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 Gly Gly Thr Ala Ala Pro Phe Gly Ser Asp Val Ser Leu Pro Phe Ile
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 Cys Pro Pro Lys Val Ala Ile Ser Gln Arg Arg Lys Ser Thr Ser Phe
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 Leu Glu Ala Gln Thr Arg His Phe Gln Pro Leu Leu Arg Thr Val Gly
 65 70 75 80
 Gln Asn His Leu Pro Pro Gly Gly Ser Pro Thr Asn Trp Thr Pro Glu
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 Ala Ile Val Met Leu Gly Thr Thr Ala Asn Arg Val Asn Arg Glu Leu
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 Cys Glu Met Gln Val Gln Pro Val Phe Glu Thr Thr Gln Ile Tyr Ser
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 Ala Gly Gln Tyr Glu Gly Ile Ser Tyr Asn Ser Pro Val Leu Ser Ser
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 Pro Met Lys Gln Ile Thr Glu Gln Lys Pro Val Pro Gly Cys Pro Ala
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 His Leu Gln Asn Leu Arg Leu Asp Ser Gly Pro Ser Pro Ala Ser Pro
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 225 230 235 240
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Pro Gln Ser Val Gly Leu His Cys His Leu Gln Pro Val Thr Glu Glu
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Gln Arg Asn Asn His Thr Pro Glu Leu Thr Ile Ser Val Val Glu Pro
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Met Gly Gln Asn Trp Pro Val Gly Ser Pro Glu Tyr Ser Ser Asp Ser
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Ser Gln Ile Thr Ser Ser Asp Ile Ser Asp Phe Gln Ser Pro Pro Pro
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Thr Gly Gly Thr Ala Ala Pro Phe Gly Ser Asp Val Ser Leu Pro Tyr
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Ile Arg Leu Pro Gln Thr Val Leu Gln Glu Ser Pro Leu Phe Phe Cys
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Phe Phe

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Pro Pro Lys Ala Tyr Asn Asn Gln Arg Arg Lys Ser Thr Ser Ile Leu
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Asn Leu His Pro Phe Ser Gly Met Glu Thr Val Glu Pro Pro Pro Leu
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 Tyr Lys Asp Met Arg Ala Glu His Gly Glu Ala Met Arg Arg Leu Ser
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 Gly Tyr Pro Met Thr Ala His Gln Leu Ser Arg Leu Ser Phe His Gln
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 Gln Arg His Ala Ala Ala Ala Ala Ser Phe Ala Phe Glu Gln Pro
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 Gly Phe Leu His Pro His Leu Ile Gln Arg Met Ser Ala His Ser Pro
 210 215 220
 Val Pro Pro Pro Leu Ala Pro Leu Ser Ala Pro Ser Gly Thr Ser Met
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 Ser Ala Ser Ser Glu Gly Cys Tyr Pro Ser Pro Gln His Ala Ala Val
 245 250 255
 Ser Thr Phe Ala Ile Ser Ala Pro Pro Val Met Pro Asp Ala Ala Pro
 260 265 270
 Pro Thr Gly Asn Val Phe Glu Phe His Leu Ala Ala Ala Gly Asp Pro
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| agttatgttg | ggtactacag | ccagtagagt | aactggagag | tcagtgtaga | tacaggtcca | 1200 |
| tcctatgttt | gaaccatctc | aagtttacag | tgactataga | cctggactag | tacttccaga | 1260 |
| agaagctcac | tattttattc | ctcaggaagc | agtgtatgta | gctgggttac | attaccaggc | 1320 |
| ccgggtggca | gaacagtatg | agggcattcc | atacaactca | tcagtactgt | caagtcctat | 1380 |
| gaaacagata | cctgaacaga | agccagtaga | agggggccct | acttcaagtt | ctgtctttga | 1440 |
| tttccatctg | gacaggcttt | cctggtagga | caccttcaga | atctaagatt | agattctgga | 1500 |
| ttgggtccgg | gatctccct | ctctagtatt | tctgcaccta | tcagtacaga | tgctacacgt | 1560 |
| ttgaaatttc | acctgtctt | tgttctcat | tctgcgcctg | ctgtgttaac | tcataacaat | 1620 |
| gagagcagaa | gcaactgtgt | atgtgaattt | catgttcaca | caccaagctc | ctcttcagga | 1680 |
| gaaggaggtg | gaattttacc | tcagcgtgtt | taccgaaatc | ggcaggttgc | agtggacttg | 1740 |
| aatcaagaag | aactgcctcc | tcaatcagtt | ggattagatg | gctacttgca | gcctgtgact | 1800 |
| gaagaaaagc | ataattacca | tgccccagaa | ttgaccgttt | ctgtggtaga | gcctatcgga | 1860 |
| cagaactggc | caataggaag | cccagaatat | tccagtgtt | cctcacaat | cacttcttca | 1920 |
| gaccccgagt | attttcagtc | acctccccct | acagggggag | cagctgcacc | ttttggctct | 1980 |
| gacgtctcaa | tgccctttat | ccatctgcct | cagacagtgt | tacaagaatc | cccacttttc | 2040 |
| ttctgtttcc | cccaaggaac | cacatctcag | caggtcttaa | ctgcctcatt | ttcttcagga | 2100 |
| ggatctgcac | ttcatccaca | ggttatagga | aaacttccac | aattatttta | aactacccta | 2160 |
| ctttgcacca | taacatttaa | attttctatt | cottatttcc | ctgaatcatg | gattttggag | 2220 |
| aaatattgtt | taattttatc | agtagagttt | ccccatcttt | gggggggtgt | gaactacata | 2280 |
| tatgcattta | aaaacaaaat | gtgagagaag | ctacctgatt | tacctattat | atgtgaaaac | 2340 |
| cagtggaaaa | aacacaaaaa | ctagaatttt | agtcattctt | cacaatcacg | acttctatgc | 2400 |
| acgttatatt | caaccagtag | tgaaaatgca | agtgtatgta | atgtatggtt | gacccagcat | 2460 |
| tatttaggaa | tacaaatctt | aagtattact | ttcttctctc | aaacaagttt | ttaaaaata | 2520 |
| ggataaattt | tttttctata | aaatataaaa | catggaaaat | agggaaatgct | gtttttgagg | 2580 |
| taataattaat | aatacacaga | attttcatta | gtgtcgaagg | atctaaaaag | acaaagtata | 2640 |
| tcatgggaat | aaaaaaagat | agaaaaggaa | acagtttagg | aatttgcctt | aacaaatgaa | 2700 |
| aatgcctttt | taaaatggca | tcagtcaagc | aagttgctgt | gcattattat | atgtccaaat | 2760 |
| aaaatgctaa | ttcataaaat | taagg | | | | 2785 |

<210> 15

<211> 2787

<212> DNA

<213> Homo sapiens

<400> 15

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| aacccaggag | gcgaggttg | cagtaagcca | agattgtcac | tgactccag | cctgggcgaa | 120 |
| agaggaagac | tccatctcaa | aaaaaagaaa | aaagaaat | catggttatg | caactcttat | 180 |
| ttatgatcag | aaaaatggac | atgttgat | taaactctgt | aacatgtttc | atgtagtaaa | 240 |
| aataataata | aactattaat | catctagctt | gggagagata | ggagaaagac | attactgtca | 300 |
| ctagtcaaat | tatatatctt | ttactatcca | ccaaaaatct | cttctgattt | ctgggttagaa | 360 |

| | | | | | | |
|-------------|------------|-------------|------------|-------------|------------|------|
| ggcatactat | taattgataa | gaaaataaaa | ctgaaggcct | ctaacatata | acagggtaat | 420 |
| aagaatatag | ggaaagttag | ttcaatagtt | taaattaaag | cacacttctt | acagtataga | 480 |
| actagtcggg | cttttatgcc | ttgttttagt | tcttactctt | cctttaactc | ttttctgtt | 540 |
| gatgtaattt | acattaatgc | ttaagagtga | actttttaag | tgtgggtaaa | aacgaaataa | 600 |
| ttacttacaa | agtttaattc | ttccatttcc | tttgagagag | gaaagttag | gaaaagcagc | 660 |
| tcttatctaa | agcaaagagc | ccacagattg | atttcattgg | ccctggatgt | atttaattga | 720 |
| tttttactat | gcacataatt | tccagaagca | ttgttattta | tttattaatt | ataaatttag | 780 |
| tgtaaccatt | tcatagggtt | acacagaact | accagttgt | gcatgtctga | tgtaatttca | 840 |
| catatgaatg | tatgaattac | ttgtcttatt | catgttgata | cagcctcagt | ccatggcgca | 900 |
| tccgtgtggg | gggaccccaa | cataccaga | atcacagata | tttttcccaa | ctattcatga | 960 |
| acgtccagtt | tctttttcac | cacctcccac | ctgcccaccg | aaagttagcca | tttcccagcg | 1020 |
| gcgtaagagc | acctccttcc | tggaaagccca | aactcaccac | ttccaacccc | tgctgaggac | 1080 |
| tggtggccaa | agtcttcttc | ccctgggtgg | cagcccaact | aactggacac | cagaggccgt | 1140 |
| agttatgttg | ggtactacag | ccagtagagt | aactggagag | tcatgtgaga | tacaggtcca | 1200 |
| tcctatgttt | gaaccatctc | aagtttacag | tgactataga | cctggactag | tacttccaga | 1260 |
| agaagctcac | tattttattc | ctcaggaagc | agtgtatgta | gctgggttac | attaccaggc | 1320 |
| ccgggtggca | gaacagtatg | agggcattcc | atacaactca | tcagtactgt | caagtcctat | 1380 |
| gaaacagata | cctgaacaga | agccagtaca | agggggccct | acttcaagtt | ctgtctttga | 1440 |
| atttccatct | ggacaggctt | tctgttagg | acaccttcag | aatctaagat | tagattctgg | 1500 |
| attgggtccg | ggatctcccc | tctctagtat | ttctgcacct | atcagtacag | atgctacag | 1560 |
| tttgaattt | caccctgtct | ttgttctca | ttctgcgcct | gctgtgttaa | ctcataacaa | 1620 |
| tgagagcaga | agcaactgtg | tatttgaatt | tcatgttcac | acaccaagct | cctcttcagg | 1680 |
| agaaggaggt | ggaattttac | ctcagcgtgt | ttaccgaaat | cggcaggttg | cagtggactt | 1740 |
| gaatcaagaa | gaactgcctc | ctcaaatcag | ttggattaca | tggtacttg | cagcctgtga | 1800 |
| ctgaagaaaa | gcataattac | catgcccag | aattgaccgt | ttctgtggtg | gagcctatcg | 1860 |
| gacagaactg | gccaatagga | agcccagaat | attccagtga | ttcctcacaa | atcacttctt | 1920 |
| cagacccag | tgattttcag | tcacctccc | ctacaggggg | agcagctgca | ccttttggt | 1980 |
| ctgacgtctc | aatgcccttt | atccatctgc | ctcagacagt | gttacaagaa | tccccacttt | 2040 |
| tcttctgttt | cccccaagga | accacatctc | agcaggtctt | aactgcctca | ttttcttcag | 2100 |
| gaggatctgc | acttcatcca | caggttatag | gaaaacttcc | acaattattt | taaactaccc | 2160 |
| tactttgcac | cataacattt | aaattttcta | ttccttattt | ccctgaatca | tggattttgg | 2220 |
| agaaatattg | tttaatttta | tcagttaggt | ttccccatct | ttgggggggt | gtgaactaca | 2280 |
| tatatgcatt | taaaaacaaa | atgtgagaga | agctacctga | tttacctatt | atatgtgaaa | 2340 |
| accagtggaa | aaaacacaaa | aactagaatt | ttagtcattc | ttcacaatca | cgacttctat | 2400 |
| gcacgttatt | ttcaaccagt | agtgaataatg | caagtgtatg | taatgtatgg | ttgaccacag | 2460 |
| attatttagg | aatacaaatc | ttaagtatta | ctttcttctc | caaacaagt | ttttaaaaaa | 2520 |
| taggataaat | tttttttcta | taaaatataa | aacatggaaa | ataggggaatg | ctgtttttga | 2580 |
| ggtaatatata | ataatacaca | gaattttcat | tagtgcgaa | ggatctaaaa | agacaaagta | 2640 |
| tatcatggga | ataaaaaaag | atagaaaagg | aaacagttta | ggaatttgcc | ttaacaaatg | 2700 |
| aaaatgcctt | tttaaaatgg | catcagtcac | gcaagttgct | gtgcattatt | atatgtccaa | 2760 |
| ataaaatgct | aattcataaa | attaagg | | | | 2787 |

<210> 16

<211> 2786

<212> DNA

<213> Homo sapiens

<400> 16

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| aacccaggag | gcggagggtg | cagtaagcca | agattgtcac | tgactccag | cctgggogaa | 120 |
| agaggaagac | tccatctcaa | aaaaaagaaa | aaagaaattt | catggttatg | caactcttat | 180 |
| ttatgatcag | aaaaatggac | attttgtgat | ttaactctgt | aacatgtttc | atgtagtaaa | 240 |
| aataataata | aactattaat | catctagctt | gggagagata | ggagaaagac | attactgtca | 300 |
| ctagtcaaat | tatatatctt | ttactatcca | ccaaaaatct | cttctgattt | ctggttagaa | 360 |
| ggcatactat | taattgataa | gaaaataaaa | ctgaaggcct | ctaacatata | acagggtaat | 420 |
| aagaatatag | ggaaagttag | ttcaatagtt | taaattaaag | cacacttctt | acagtataga | 480 |
| actagtcggg | cttttatgcc | ttgttttagt | tcttactctt | cctttaactc | ttttctgtt | 540 |
| gatgtaattt | acattaatgc | ttaagagtga | actttttaag | tgtgggtaaa | aacgaaataa | 600 |
| ttacttacaa | agtttaattc | ttccatttcc | tttgagagag | gaaagttag | gaaaagcagc | 660 |
| tcttatctaa | agcaaagagc | ccacagattg | atttcattgg | ccctggatgt | atttaattga | 720 |

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| | | | | | | |
|------------|-------------|------------|-------------|-------------|-------------|------|
| tttttactat | gcacataaatt | tccagaagca | ttgttattta | tttattaatt | ataaatttag | 780 |
| tgtaaccatt | tcatagggtt | acacagaact | accaggttgt | gcatgtctga | tgtaatttca | 840 |
| catatgaatg | tatgaattac | ttgtcttatt | catgttgata | cagcctcagt | ccatggcgca | 900 |
| tccgtgtggg | gggaccccaa | cataccaga | atcacagata | tttttccaa | ctattcatga | 960 |
| acgtccagtt | tctttttcac | cacotcccac | ctgcccaccg | aaagtagcca | tttcccagcg | 1020 |
| gcgtaagagc | acctccttcc | tggaagccca | aactcaccac | ttccaacccc | tgctgaggac | 1080 |
| tgttggccaa | agtcttcttc | cacotgggtg | cagcccaact | aactggacac | cagaggccgt | 1140 |
| agttatgttg | ggtagtacag | ccagtagagt | aactggagag | tcatgtgaga | tacagggtcca | 1200 |
| tcctatgttt | gaaccatctc | aagtttacag | tgactataga | cctggactag | tacttccaga | 1260 |
| agaagctcac | tattttattc | ctcaggaagc | agtgtatgta | gctgggggtac | attaccaggc | 1320 |
| ccgggtggca | gaacagtatg | agggcattcc | atacaactca | tcagtactgt | caagtcctat | 1380 |
| gaaacagata | cctgaacaga | agccagtaca | agggggccct | acttcaagtt | ctgtctttga | 1440 |
| atttccatct | ggacaggcct | tcctggtagg | apaccctcag | aactctaagat | tagattcttg | 1500 |
| attgggtccg | ggatctcccc | tctctagtat | ttctgcacct | atcagtacag | atgctacacg | 1560 |
| tttgaaattt | caccctgtct | ttgttcctca | ttctgcgcct | gctgtgttaa | ctcataacaa | 1620 |
| tgagagcaga | agcaactgtg | tatttgaaat | tcagtgtcac | acaccaagct | cctcttcagg | 1680 |
| agaaggaggt | ggaattttac | ctcagcgtgt | ttaccgaaat | cggcaggttg | cagtggactt | 1740 |
| gaatcaagaa | gaactgcctc | ctcaatcagt | tggtattacat | ggctacttgt | agcctgtgac | 1800 |
| tgaagaaaaa | cataattacc | atgccccaga | attgaccgtt | tctgtggtag | agcctatcgg | 1860 |
| acagaactgg | ccaataggaa | gcccagaata | ttccagtgtat | tcctcacaaa | tcacttcttc | 1920 |
| agacccaggt | gattttcagt | cacctccccc | tacaggggga | gcagctgcac | cttttggtctc | 1980 |
| tgacgtctca | atgcccttta | tccatctgcc | tcagacagtg | ttacaagaat | ccccactttt | 2040 |
| cttctgtttc | ccccaggaa | ccacatctca | gcaggtctta | actgcctcat | tttcttcagg | 2100 |
| aggatctgca | cttcatccac | aggttatagg | aaaacttcca | caattatttt | aaactaccct | 2160 |
| actttgcacc | ataacattta | aattttctat | tccttatttc | cctgaatcat | ggatttttga | 2220 |
| gaaatattgt | ttaattttat | cagtagagtt | tccccatctt | tggtgggttg | tgaactacat | 2280 |
| atatgcattt | aaaaacaaaa | tgtgagagaa | gctacctgat | ttacctatta | tatgtgaaaa | 2340 |
| ccagtggaaa | aaacacaaaa | actagaattt | tagtcattct | tcacaatcac | gacttctatg | 2400 |
| cacgttattt | tcaaccagta | gtgaaaatgc | aagtgtatgt | aatgtatggt | tgaccagca | 2460 |
| ttatttagga | atacaaatct | taagtattac | tttcttcttc | caaacaagtt | tttaaaaaat | 2520 |
| aggataaatt | ttttttctat | aaaatataaa | acatggaaaa | tagggaaatgc | tgftttttgag | 2580 |
| gtaatatata | taatacacag | aattttcatt | agtgtcgaag | gatctaaaaa | gacaaaagtat | 2640 |
| atcatgggaa | taaaaaaaga | tagaaaagga | aacagtttag | gaatttgcct | taacaaatga | 2700 |
| aatgcctttt | ttaaaatggc | atcagtcaag | caagttgctg | tgcatatta | tatgtccaaa | 2760 |
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<210> 17

<211> 2365

<212> DNA

<213> Sus scrofa

<400> 17

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| gaattcggca | cgagggtatc | cacaaaaaat | ctcttctgat | ttctaggtag | aagacacact | 60 |
| attagttaat | cagaaattaa | ctctggagcc | tctaacagca | cacaacaata | aagcttcaga | 120 |
| ataggaaaac | ttgttacagt | ctcattctta | cttaactctg | tttccactga | tgtagtttac | 180 |
| attaagtcat | gagtgaacat | attaattgtg | ggtaaaagca | gaataatcac | ttaggaagtt | 240 |
| aaatccttcc | atttcccttg | agagaggaga | attgtggaaa | agcagctcct | atctaattgca | 300 |
| aagagtccca | cagaataaatt | ttattgaccc | tggtatgtatt | taatggattt | ttttttttta | 360 |
| ctgtgcacat | aattttctgaa | agcattgtta | tttctttatt | aattataaat | ttggtgtaac | 420 |
| catttcgtag | ggttacacag | agctacccag | ttatgcatgt | ctaattgtaat | ttcacatatg | 480 |
| aatgtatgaa | ttacttgtct | tattcatgtt | gatacagcct | cagtccatgg | cgcatccgcg | 540 |
| tggtggggacc | ccaacatacc | cagaatcaca | gatatttttc | ccaactatc | atgaacgtcc | 600 |
| agtttctttt | tcaccacctc | ccacctgtcc | accgaagggt | gctatttccc | agcggcgtaa | 660 |
| gagcacctcc | ttcctggaag | cccaaaactca | tcacttccaa | cccctgctga | ggactgttgg | 720 |
| ccaaaaatctt | cttccacctg | gtggctgccc | aaactaactgg | acaccagagg | ccgtagtatt | 780 |
| gttgggtact | acagccagta | gagtaactgg | agagccatgt | gagatacagg | tccaacctct | 840 |
| gtttgagcct | actcaagttt | atggtgactg | tagacctgga | ctagtagttc | cagaagaagc | 900 |
| tcactacttt | attcctcagg | aagcagtgta | tgtagcaggg | gtacattacc | agacccaaat | 960 |
| ggcagaacag | tttgagggtg | ttccatacaa | ctctccagtc | ctgtcaagtc | ctatgaaaca | 1020 |
| gatacctgaa | cagaagccag | tgcaaggggg | ccctccttcg | agttctgtct | ttgaatttcc | 1080 |

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| atctggacag | gctttcctgg | taggacatct | tcagaattta | cgattagatt | ctggactaag | 1140 |
| tccaggatct | cccctctcta | gcattttctac | acctatcagt | acagatgcta | cacgtttgaa | 1200 |
| atctcaccct | gtctttgttc | ctcattctgc | acctgctgtg | ttactcata | acaatgagag | 1260 |
| cagaagcaat | tgtgtatttg | agtttcatgt | tcatactcca | agctcctctt | caggagaagg | 1320 |
| aggagtttta | cctcagcgta | tttaccgaaa | tcgacaggtt | gccgtggact | tgaatcagga | 1380 |
| agaaccacct | cctcaatcag | ctggattaca | cgccgcctg | cagcctgtga | ctgaagaaca | 1440 |
| acataatttc | cagccccag | aattgaccgt | ttctgtggta | gagcctactg | gacagagctg | 1500 |
| gccaatagga | agcccagaat | attccagtga | ttcctcacia | atcaattctt | cagaccccag | 1560 |
| tgattttcaa | tcacctcccc | ctacaggggg | aacagctgca | ccttttggct | ctgacgtctc | 1620 |
| attacccttt | atccatctgc | ctcagacagt | gatacaagaa | tcgccacttt | tcttctgttt | 1680 |
| cccccaagga | accacttctc | cgcagatttt | atctgcatca | ttttcttcag | gaggatctgc | 1740 |
| actccatcca | caggttatag | gaaaaacttc | acagttctct | taaactaccc | tgctgtgcac | 1800 |
| cattgcatct | aagttttctg | tccctccttt | ccattcatga | ggattattgt | tttaatttat | 1860 |
| tacaatttct | ccattttgtg | tgtgtgttg | gggggttatt | ttaaactact | tgtatttaag | 1920 |
| aacaaaatct | gagagcaagc | ctgcctgatt | tacctataat | caaaccattg | gaaaagaaaa | 1980 |
| gaaactagaa | ttttagtac | ttgtcaaaat | cagtgacttc | tgttcatatg | tagaacgttt | 2040 |
| tcaactagaa | gtgaaatgta | aatgtctgta | aagtgactc | agaattgatg | cttcacacat | 2100 |
| actaatgtga | agtatttctt | tcttcctaga | aatgaacgtg | gctagttttt | taagagaaga | 2160 |
| taacattttt | ttttcctgta | aatgaaaag | aatgggaagt | ggagaatcct | ttttctaaaa | 2220 |
| gtagtattag | gagtagatag | agaaattaaa | agagaggaaa | catcttaata | agtgaagttg | 2280 |
| cctttttaaa | atggcatcaa | acaaatcaat | ttgtattatg | tgttcaaata | aaatgttaat | 2340 |
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<210> 18
 <211> 433
 <212> PRT
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<400> 18
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 Phe Pro Thr Ile His Glu Arg Pro Val Ser Phe Ser Pro Pro Pro Thr
 35 40 45
 Cys Pro Pro Lys Val Ala Ile Ser Gln Arg Arg Lys Ser Thr Ser Phe
 50 55 60
 Leu Glu Ala Gln Thr His His Phe Gln Pro Leu Leu Arg Thr Val Gly
 65 70 75 80
 Gln Asn Leu Leu Pro Pro Gly Gly Cys Pro Thr Asn Trp Thr Pro Glu
 85 90 95
 Ala Val Val Met Leu Gly Thr Thr Ala Ser Arg Val Thr Gly Glu Pro
 100 105 110
 Cys Glu Ile Gln Val Gln Pro Leu Phe Glu Pro Thr Gln Val Tyr Gly
 115 120 125
 Asp Cys Arg Pro Gly Leu Val Leu Pro Glu Glu Ala His Tyr Phe Ile
 130 135 140
 Pro Gln Glu Ala Val Tyr Val Ala Gly Val His Tyr Gln Thr Gln Met
 145 150 155 160
 Ala Glu Gln Phe Glu Gly Ile Pro Tyr Asn Ser Pro Val Leu Ser Ser

165 170 175
 Pro Met Lys Gln Ile Pro Glu Gln Lys Pro Val Gln Gly Gly Pro Pro
 180 185 190
 Ser Ser Ser Val Phe Glu Phe Pro Ser Gly Gln Ala Phe Leu Val Gly
 195 200 205
 His Leu Gln Asn Leu Arg Leu Asp Ser Gly Leu Ser Pro Gly Ser Pro
 210 215 220
 Leu Ser Ser Ile Ser Thr Pro Ile Ser Thr Asp Ala Thr Arg Leu Lys
 225 230 235 240
 Phe His Pro Val Phe Val Pro His Ser Ala Pro Ala Val Leu Thr His
 245 250 255
 Asn Asn Glu Ser Arg Ser Asn Cys Val Phe Glu Phe His Val His Thr
 260 265 270
 Pro Ser Ser Ser Ser Gly Glu Gly Gly Val Leu Pro Gln Arg Ile Tyr
 275 280 285
 Arg Asn Arg Gln Val Ala Val Asp Leu Asn Gln Glu Glu Pro Pro Pro
 290 295 300
 Gln Ser Ala Gly Leu His Gly Arg Leu Gln Pro Val Thr Glu Glu Gln
 305 310 315 320
 His Asn Phe Gln Pro Pro Glu Leu Thr Val Ser Val Val Glu Pro Thr
 325 330 335
 Gly Gln Ser Trp Pro Ile Gly Ser Pro Glu Tyr Ser Ser Asp Ser Ser
 340 345 350
 Gln Ile Thr Ser Ser Asp Pro Ser Asp Phe Gln Ser Pro Pro Pro Thr
 355 360 365
 Gly Gly Thr Ala Ala Pro Phe Gly Ser Asp Val Ser Leu Pro Phe Ile
 370 375 380
 His Leu Pro Gln Thr Val Ile Gln Glu Ser Pro Leu Phe Phe Cys Phe
 385 390 395 400
 Pro Gln Gly Thr Thr Ser Pro Gln Ile Leu Ser Ala Ser Phe Ser Ser
 405 410 415
 Gly Gly Ser Ala Leu His Pro Gln Val Ile Gly Lys Leu Pro Gln Phe
 420 425 430
 Ser

<210> 19
 <211> 426
 <212> PRT
 <213> Homo sapiens

<400> 19
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25

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 340 345 350

Ser Asp Phe Gln Ser Pro Pro Pro Thr Gly Gly Ala Ala Ala Pro Phe
 355 360 365

Gly Ser Asp Val Ser Met Pro Phe Ile His Leu Pro Gln Thr Val Leu
 370 375 380

Gln Glu Ser Pro Leu Phe Phe Cys Phe Pro Gln Gly Thr Thr Ser Gln
 385 390 395 400

Gln Val Leu Thr Ala Ser Phe Ser Ser Gly Gly Ser Ala Leu His Pro
 405 410 415

Gln Val Ile Gly Lys Leu Pro Gln Leu Phe
 420 425

<210> 20
 <211> 419
 <212> PRT
 <213> Homo sapiens

<400> 20
 Met Ala His Pro Cys Gly Gly Thr Pro Thr Tyr Pro Glu Ser Gln Ile
 1 5 10 15

Phe Phe Pro Thr Ile His Glu Arg Pro Val Ser Phe Ser Pro Pro Pro
 20 25 30

Thr Cys Pro Pro Lys Val Ala Ile Ser Gln Arg Arg Lys Ser Thr Ser
 35 40 45

Phe Leu Glu Ala Gln Thr His His Phe Gln Pro Leu Leu Arg Thr Val
 50 55 60

Gly Gln Ser Leu Leu Pro Pro Gly Gly Ser Pro Thr Asn Trp Thr Pro
 65 70 75 80

Glu Ala Val Val Met Leu Gly Thr Thr Ala Ser Arg Val Thr Gly Glu
 85 90 95

Ser Cys Glu Ile Gln Val His Pro Met Phe Glu Pro Ser Gln Val Tyr
 100 105 110

Ser Asp Tyr Arg Pro Gly Leu Val Leu Pro Glu Glu Ala His Tyr Phe
 115 120 125

Ile Pro Gln Glu Ala Val Tyr Val Ala Gly Val His Tyr Gln Ala Arg
 130 135 140

Val Ala Glu Gln Tyr Glu Gly Ile Pro Tyr Asn Ser Ser Val Leu Ser
 145 150 155 160

Ser Pro Met Lys Gln Ile Pro Glu Gln Lys Pro Val Gln Gly Gly Pro
 165 170 175

Thr Ser Ser Ser Val Phe Glu Phe Pro Ser Gly Gln Ala Phe Leu Val

180 185 190
 Gly His Leu Gln Asn Leu Arg Leu Asp Ser Gly Leu Gly Pro Gly Ser
 195 200 205
 Pro Leu Ser Ser Ile Ser Ala Pro Ile Ser Thr Asp Ala Thr Arg Leu
 210 215 220
 Lys Phe His Pro Val Phe Val Pro His Ser Ala Pro Ala Val Leu Thr
 225 230 235 240
 His Asn Asn Glu Ser Arg Ser Asn Cys Val Phe Glu Phe His Val His
 245 250 255
 Thr Pro Ser Ser Ser Ser Gly Glu Gly Gly Gly Ile Leu Pro Gln Arg
 260 265 270
 Val Tyr Arg Asn Arg Gln Val Ala Val Asp Leu Asn Gln Glu Glu Leu
 275 280 285
 Pro Pro Gln Ser Val Gly Leu His Gly Tyr Leu Gln Pro Val Thr Glu
 290 295 300
 Glu Lys His Asn Tyr His Ala Pro Glu Leu Thr Val Ser Val Val Glu
 305 310 315 320
 Pro Ile Gly Gln Asn Trp Pro Ile Gly Ser Pro Glu Tyr Ser Ser Asp
 325 330 335
 Ser Ser Gln Ile Thr Ser Ser Asp Pro Ser Asp Phe Gln Ser Pro Pro
 340 345 350
 Pro Thr Gly Gly Ala Ala Ala Pro Phe Gly Ser Asp Val Ser Met Pro
 355 360 365
 Phe Ile His Leu Pro Gln Thr Val Leu Gln Glu Ser Pro Leu Phe Phe
 370 375 380
 Cys Phe Pro Gln Gly Thr Thr Ser Gln Gln Val Leu Thr Ala Ser Phe
 385 390 395 400
 Ser Ser Gly Gly Ser Ala Leu His Pro Gln Val Ile Gly Lys Leu Pro
 405 410 415
 Gln Leu Phe

<210> 21
 <211> 425
 <212> PRT
 <213> Mus musculus

<400> 21
 Met Leu Ile Gln Pro Gln Ser Met Ala His Pro Cys Gly Gly Thr Pro
 1 5 10 15
 Thr Tyr Pro Glu Ser Gln Ile Phe Phe Pro Thr Ile His Glu Arg Pro
 20 25 30
 Val Ser Phe Ser Pro Pro Pro Thr Cys Pro Pro Lys Val Ala Ile Ser

35 40 45
 Gln Arg Arg Lys Ser Thr Ser Phe Leu Glu Ala Gln Thr Arg His Phe
 50 55 60
 Gln Pro Leu Leu Arg Thr Val Gly Gln Asn His Leu Pro Pro Gly Ser
 65 70 75 80
 Ser Pro Thr Asn Trp Thr Pro Glu Ala Ile Val Met Leu Gly Ala Thr
 85 90 95
 Ala Asn Arg Val Asn Arg Glu Leu Cys Glu Met Gln Val Gln Pro Val
 100 105 110
 Phe Glu Pro Thr Gln Ile Tyr Ser Asp Tyr Arg Pro Gly Leu Val Leu
 115 120 125
 Ala Glu Glu Ala His Tyr Phe Ile Pro Gln Glu Thr Val Tyr Leu Ala
 130 135 140
 Gly Val His Tyr Gln Ala Gln Val Ala Gly Gln Tyr Glu Gly Ile Ser
 145 150 155 160
 Tyr Asn Ser Pro Val Leu Ser Ser Pro Met Lys Gln Ile Ser Glu Gln
 165 170 175
 Lys Pro Val Pro Gly Gly Pro Ala Ser Ser Ser Val Phe Glu Phe Pro
 180 185 190
 Ser Gly Gln Ala Phe Leu Val Gly His Leu Gln Asn Leu Arg Leu Asp
 195 200 205
 Ser Gly Pro Ser Pro Ala Ser Pro Leu Ser Ser Ile Ser Ala Pro Asn
 210 215 220
 Ser Thr Asp Ala Thr His Leu Lys Phe His Pro Val Phe Val Pro His
 225 230 235 240
 Ser Ala Pro Ala Val Leu Thr Asn Ser Asn Glu Asn Arg Ser Asn Cys
 245 250 255
 Val Phe Glu Phe His Ala Gln Thr Pro Ser Ser Ser Gly Glu Gly Gly
 260 265 270
 Gly Ile Leu Pro Gln Arg Val Tyr Arg Asn Arg Gln Val Ala Val Asp
 275 280 285
 Ser Asn Gln Glu Glu Leu Ser Pro Gln Ser Val Gly Leu His Cys His
 290 295 300
 Leu Gln Pro Val Thr Glu Glu Gln Arg Asn Asn His Ala Pro Glu Leu
 305 310 315 320
 Thr Ile Ser Val Val Glu Pro Met Gly Gln Ile Trp Pro Ile Gly Ser
 325 330 335
 Pro Glu Tyr Ser Ser Asp Ser Ser Gln Ile Thr Ser Ser Asp Leu Ser
 340 345 350
 Asp Phe Gln Ser Pro Pro Pro Thr Gly Gly Thr Ala Ala Pro Phe Gly
 355 360 365

Ser Asp Val Ser Leu Pro Phe Ile Arg Leu Pro Gln Thr Val Leu Gln
 370 375 380

Glu Ser Pro Leu Phe Phe Cys Phe Pro Gln Gly Thr Thr Ser Gln Gln
 385 390 395 400

Val Leu Ser Ala Ser Tyr Ser Ser Gly Gly Ser Thr Leu His Pro Gln
 405 410 415

Val Ile Gly Lys Leu Ser Gln Phe Phe
 420 425

<210> 22
 <211> 418
 <212> PRT
 <213> Mus musculus

<400> 22
 Met Ala His Pro Cys Gly Gly Thr Pro Thr Tyr Pro Glu Ser Gln Ile
 1 5 10 15

Phe Phe Pro Thr Ile His Glu Arg Pro Val Ser Phe Ser Pro Pro Pro
 20 25 30

Thr Cys Pro Pro Lys Val Ala Ile Ser Gln Arg Arg Lys Ser Thr Ser
 35 40 45

Phe Leu Glu Ala Gln Thr Arg His Phe Gln Pro Leu Leu Arg Thr Val
 50 55 60

Gly Gln Asn His Leu Pro Pro Gly Ser Ser Pro Thr Asn Trp Thr Pro
 65 70 75 80

Glu Ala Ile Val Met Leu Gly Ala Thr Ala Asn Arg Val Asn Arg Glu
 85 90 95

Leu Cys Glu Met Gln Val Gln Pro Val Phe Glu Pro Thr Gln Ile Tyr
 100 105 110

Ser Asp Tyr Arg Pro Gly Leu Val Leu Ala Glu Glu Ala His Tyr Phe
 115 120 125

Ile Pro Gln Glu Thr Val Tyr Leu Ala Gly Val His Tyr Gln Ala Gln
 130 135 140

Val Ala Gly Gln Tyr Glu Gly Ile Ser Tyr Asn Ser Pro Val Leu Ser
 145 150 155 160

Ser Pro Met Lys Gln Ile Ser Glu Gln Lys Pro Val Pro Gly Gly Pro
 165 170 175

Ala Ser Ser Ser Val Phe Glu Phe Pro Ser Gly Gln Ala Phe Leu Val
 180 185 190

Gly His Leu Gln Asn Leu Arg Leu Asp Ser Gly Pro Ser Pro Ala Ser
 195 200 205

Pro Leu Ser Ser Ile Ser Ala Pro Asn Ser Thr Asp Ala Thr His Leu

210 215 220
 Lys Phe His Pro Val Phe Val Pro His Ser Ala Pro Ala Val Leu Thr
 225 230 235 240
 Asn Ser Asn Glu Asn Arg Ser Asn Cys Val Phe Glu Phe His Ala Gln
 245 250 255
 Thr Pro Ser Ser Ser Gly Glu Gly Gly Gly Ile Leu Pro Gln Arg Val
 260 265 270
 Tyr Arg Asn Arg Gln Val Ala Val Asp Ser Asn Gln Glu Glu Leu Ser
 275 280 285
 Pro Gln Ser Val Gly Leu His Cys His Leu Gln Pro Val Thr Glu Glu
 290 295 300
 Gln Arg Asn Asn His Ala Pro Glu Leu Thr Ile Ser Val Val Glu Pro
 305 310 315 320
 Met Gly Gln Ile Trp Pro Ile Gly Ser Pro Glu Tyr Ser Ser Asp Ser
 325 330 335
 Ser Gln Ile Thr Ser Ser Asp Leu Ser Asp Phe Gln Ser Pro Pro Pro
 340 345 350
 Thr Gly Gly Thr Ala Ala Pro Phe Gly Ser Asp Val Ser Leu Pro Phe
 355 360 365
 Ile Arg Leu Pro Gln Thr Val Leu Gln Glu Ser Pro Leu Phe Phe Cys
 370 375 380
 Phe Pro Gln Gly Thr Thr Ser Gln Gln Val Leu Ser Ala Ser Tyr Ser
 385 390 395 400
 Ser Gly Gly Ser Thr Leu His Pro Gln Val Ile Gly Lys Leu Ser Gln
 405 410 415
 Phe Phe

<210> 23
 <211> 426
 <212> PRT
 <213> Ratus ratus

<400> 23
 Met Leu Ile Gln Pro Gln Ser Val Ala His Pro Cys Gly Gly Thr Pro
 1 5 10 15
 Thr Tyr Pro Glu Ser Gln Ile Phe Phe Pro Thr Ile His Glu Arg Pro
 20 25 30
 Val Ser Phe Ser Pro Pro Pro Thr Cys Pro Pro Lys Val Ala Ile Ser
 35 40 45
 Gln Arg Arg Lys Ser Thr Ser Phe Leu Glu Ala Gln Thr Arg His Phe
 50 55 60
 Gln Pro Leu Leu Arg Thr Val Gly Gln Asn His Leu Pro Pro Gly Gly

| | | | |
|---|-----|-----|-----|
| 65 | 70 | 75 | 80 |
| Ser Pro Thr Asn Trp Thr Pro Glu Ala Ile Val Met Leu Gly Thr Thr | 85 | 90 | 95 |
| Ala Asn Arg Val Asn Arg Glu Leu Cys Glu Met Gln Val Gln Pro Val | 100 | 105 | 110 |
| Phe Glu Thr Thr Gln Ile Tyr Ser Asp Tyr Arg Pro Gly Leu Val Leu | 115 | 120 | 125 |
| Ala Glu Glu Ala His Tyr Phe Ile Pro Gln Glu Thr Val Tyr Leu Ala | 130 | 135 | 140 |
| Gly Val His Tyr Gln Ala His Ala Ala Gly Gln Tyr Glu Gly Ile Ser | 145 | 150 | 155 |
| Tyr Asn Ser Pro Val Leu Ser Ser Pro Met Lys Gln Ile Thr Glu Gln | 165 | 170 | 175 |
| Lys Pro Val Pro Gly Cys Pro Ala Ser Ser Ser Val Phe Glu Phe Pro | 180 | 185 | 190 |
| Ser Gly Gln Ala Phe Leu Val Gly His Leu Gln Asn Leu Arg Leu Asp | 195 | 200 | 205 |
| Ser Gly Pro Ser Pro Ala Ser Pro Leu Ser Ser Ile Ser Ala Pro Asn | 210 | 215 | 220 |
| Ser Thr Asp Ala Thr His Leu Lys Phe His Pro Val Phe Val Pro His | 225 | 230 | 235 |
| Ser Ala Pro Ala Val Leu Thr His Ser Asn Glu Asn Arg Ser Asn Cys | 245 | 250 | 255 |
| Val Phe Glu Phe His Ala Gln Thr Pro Ser Ser Ser Ser Gly Glu Gly | 260 | 265 | 270 |
| Gly Gly Ile Leu Pro Gln Arg Val Tyr Arg Asn Arg Gln Val Ala Val | 275 | 280 | 285 |
| Asp Ser Ser Gln Glu Glu Leu Ser Pro Gln Ser Val Gly Leu His Cys | 290 | 295 | 300 |
| His Leu Gln Pro Val Thr Glu Glu Gln Arg Asn Asn His Thr Pro Glu | 305 | 310 | 315 |
| Leu Thr Ile Ser Val Val Glu Pro Met Gly Gln Asn Trp Pro Val Gly | 325 | 330 | 335 |
| Ser Pro Glu Tyr Ser Ser Asp Ser Ser Gln Ile Thr Ser Ser Asp Ile | 340 | 345 | 350 |
| Ser Asp Phe Gln Ser Pro Pro Pro Thr Gly Gly Thr Ala Ala Pro Phe | 355 | 360 | 365 |
| Gly Ser Asp Val Ser Leu Pro Tyr Ile Arg Leu Pro Gln Thr Val Leu | 370 | 375 | 380 |
| Gln Glu Ser Pro Leu Phe Phe Cys Phe Pro Gln Gly Thr Thr Ser Gln | 385 | 390 | 395 |
| | | | 400 |

Gln Val Leu Ser Ala Ser Tyr Ser Ser Gly Gly Ser Ala Leu His Pro
405 410 415

Gln Val Ile Gly Lys Leu Ser Gln Phe Phe
420 425

<210> 24
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Forward amplification Primer

<400> 24
ttccagaagc attgttattt attt 24

<210> 25
<211> 19
<212> DNA
<213> Artificial

<220>
<223> Reverse Replication Primer

<400> 25
cccccttgta ctggcttct 19

<210> 26
<211> 23
<212> DNA
<213> Artificial

<220>
<223> Forward Replication Primer

<400> 26
caccagaggc cgtagttatg ttg 23

<210> 27
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Reverse replication primer.

<400> 27
ttgaggaggc agttcttctt gatt 24

<210> 28
<211> 23
<212> DNA
<213> Artificial

<220>
<223> Forward replication primer.

<400> 28
gcgcctgctg tgttaactca taa 23

<210> 29
<211> 24
<212> DNA
<213> Artificial

<220>
<223> Reverse replication primer.

<400> 29
ccaaagatgg ggaaactcta ctga 24

<210> 30
<211> 23
<212> DNA
<213> Artificial

<220>
<223> Forward replication primer.

<400> 30
accatcacct aaggagacag acc 23

<210> 31
<211> 22
<212> DNA
<213> Artificial

<220>
<223> Reverse replication primer.

<400> 31
tgcaacaaat gtaccactct gg 22

<210> 32
<211> 16
<212> DNA
<213> Artificial

<220>
<223> Forward replication primer.

<400> 32
agctcctaaa tccccg 16

<210> 33
<211> 21
<212> DNA
<213> Artificial

<220>

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<223> Reverse replication primer.

<400> 33

gccatgtcta taaataccct g

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